

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Claim 1 (Cancelled)

Claim 2 (Currently amended): A method of increasing the secretion of a heterologous protein in a fungal cell, comprising

inducing an unfolded protein response (UPR) by increasing the presence of a HAC1 UPR-modulating protein in said fungal cell, comprising transforming the fungal cell with a nucleic acid encoding a yeast or filamentous fungal HAC1 UPR-modulating protein comprising a DNA binding domain ~~having that has~~:

a) at least 90% sequence identity to the DNA binding domain of amino acid residues 84 – 147 of SEQ ID NO: 5;

b) at least 90% sequence identity to the DNA binding domain of amino acid residues 53 – 116 of SEQ ID NO: 6 or

c) the DNA binding domain of amino acid residues 45 – 109 of SEQ ID No:19, and increasing secretion of the heterologous protein relative to secretion of the heterologous protein in a parental cell, wherein said fungal cell is a yeast or filamentous fungal cell.

Claim 3 (Original): The method of Claim 2 wherein said HAC1 protein is constitutively produced.

Claim 4 (Cancelled)

Claim 5 (Original): The method of Claim 2 wherein said HAC1 protein is encoded by a nucleic acid isolated from a cell selected from the group consisting of *Aspergillus*, *Trichoderma*, *Saccharomyces*, *Schizosaccharomyces*, *Kluyveromyces*, *Pichia*, *Hansenula*, *Fusarium*, *Neurospora*, and *Penicillium*.

Claim 6 (Original): The method of Claim 2 wherein said HAC1 protein is encoded by a nucleic acid isolated from yeast.

Claim 7 (Original): The method of Claim 6 wherein said yeast is *Saccharomyces cerevisiae*.

Claim 8 (Original): The method of Claim 2 wherein said HAC1 protein is encoded by a nucleic acid isolated from filamentous fungi.

Claim 9 (Original): The method of Claim 8 wherein said fungi is from *Trichoderma*.

Claim 10 (Original): The method of Claim 8 wherein said fungi is *Trichoderma reesei*.

Claim 11 (Original): The method of Claim 8 wherein said fungi is from *Aspergillus*.

Claim 12 (Original): The method of Claim 8 wherein said fungi is *Aspergillus nidulans*.

Claim 13 (Original): The method of Claim 8 wherein said fungi is *Aspergillus niger*.

Claims 14- 25 (Cancelled)

Claim 26 (Previously presented): The method of Claim 2 wherein said yeast or filamentous fungal cell is selected from the group consisting of *Aspergillus spp.*, *Trichoderma spp.*, *Saccharomyces cerevisiae*, *Schizosaccharomyces pombe*, *Kluyveromyces spp.*, *Pichia spp.*, *Hansenula polymorpha*, *Fusarium spp.*, *Neurospora spp.*, and *Penicillium spp.*

Claim 27 (Original): The method of Claim 2 wherein said fungal cell is a yeast cell.

Claim 28 (Original): The method of Claim 27 wherein said yeast is *Saccharomyces cerevisiae*.

Claim 29 (Original): The method of Claim 2 wherein said fungal cell is a filamentous fungi.

Claim 30 (Original): The method of Claim 29 wherein said fungi is from *Trichoderma*.

Claim 31 (Original): The method of Claim 29 wherein said fungi is *Trichoderma reesei*.

Claim 32 (Original): The method of Claim 29 wherein said fungi is from *Aspergillus*.

Claim 33 (Original): The method of Claim 29 wherein said fungi is *Aspergillus nidulans*.

Claim 34 (Original): The method of Claim 29 wherein said fungi is *Aspergillus niger*.

Claims 35-82 (Cancelled)

Claim 83 (Withdrawn-previously presented) A fungal cell containing a heterologous nucleic acid encoding a yeast or filamentous fungi protein having unfolded protein response modulating activity and a heterologous nucleic acid encoding a protein of interest to be secreted, wherein said fungal cell is a yeast or filamentous fungal cell.

Claim 84 (Withdrawn): The cell of Claim 83 wherein said protein having unfolded protein response modulating activity is a fungal HAC1.

Claim 85 (Withdrawn): The cell of Claim 83 wherein said protein of interest is selected from the group consisting of lipase, cellulase, endo-glucosidase H, protease, carbohydrase, reductase, oxidase, isomerase, transferase, kinase, phosphatase, alpha-amylase, glucoamylase, lignocellulose hemicellulase, pectinase and ligninase.

Claim 86 (Cancelled)

Claim 87 (Withdrawn): The cell of Claim 83 wherein said protein having unfolded protein response modulating activity is a yeast HAC1.

Claim 88 (Cancelled)

Claim 89 (Previously presented): The method of Claim 2 wherein said UPR-modulating protein comprises a DNA binding domain that has at least 90% identity to the DNA binding domain of a) amino acid residues 84 – 147 of SEQ ID NO: 5 or b) amino acid residues 53 – 116 of SEQ ID NO: 6.

Claim 90 (Previously presented): The method of Claim 2 wherein said UPR-modulating protein comprises a DNA binding domain that has at least 95% identity to the DNA binding domain of a) amino acid residues 84 – 147 of SEQ ID No: 5 or b) amino acid residues 53 – 116 of SEQ ID No: 6.

Claim 91 (Currently amended): The method of Claim 2 wherein said UPR-modulating protein comprises a DNA binding domain having that has the DNA binding domain of amino acid residue positions 84 to 147 of SEQ ID NO: 5.

Claim 92 (Currently amended): The method of Claim 2 wherein said UPR-modulating protein comprises a DNA binding domain having that has the DNA binding domain of amino acid residue positions of 53 to 116 of SEQ ID NO: 6.

Claim 93 (Previously presented): The method of Claim 2, wherein said heterologous protein is selected from the group consisting of lipases, cellulases, endo-glucosidase H, proteases, carbohydrases, reductases, oxidases, isomerases, transferases, kinases, phosphatases, alpha-amylases, glucoamylases, hemicellulases, pectinases and ligninases.

Claim 94 (Previously presented): The method of Claim 93, wherein the heterologous protein is a protease, cellulase, glucoamylase or alpha amylase.

Claim 95 (Currently amended): The method of Claim 2, wherein the fungal cell is a *Trichoderma* or *Aspergillus* fungal cell, the UPR-modulating protein comprising a DNA binding domain that has at least 90% sequence identity to the DNA binding domain of a) amino acid residues 84 – 147 of SEQ ID NO: 5 or b) amino acid residues 53 – 116 of SEQ ID NO: 6 and the heterologous protein is selected from the group consisting of proteases, cellulases, glucoamylases, and alpha amylases.

Claim 96 (Previously presented): The method of Claim 95, wherein the fungal cell is a *Trichoderma* cell and the UPR-modulating protein comprises a DNA binding domain that has at least 95% sequence identity to the DNA binding domain of a) amino acid residues 84 – 147 of SEQ ID NO: 5 or b) amino acid residues 53 – 116 of SEQ ID NO: 6.

Claim 97 (Previously presented): The method of Claim 95, wherein the fungal cell is an *Aspergillus* cell and the UPR-modulating protein comprises a DNA binding domain that has at least 95% sequence similarity to the DNA binding domain of a) amino acid residues 84 – 147 of SEQ ID NO: 5; b) amino acid residues 53 – 116 of SEQ ID NO: 6.

Claim 98 (Previously presented): The method of Claim 2, further comprising a promoter operably linked to the nucleic acid encoding the HAC1 UPR-modulating protein, said promoter selected from the group consisting of *cbh1*, *gpdA*, *adh1* and *pgk1*.

Claim 99 (Previously presented): The method of Claim 2 wherein said UPR-modulating protein comprises a DNA binding domain having the DNA binding domain of amino acid residue positions 45 to 109 of SEQ ID NO: 19.